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(54) **FILIGREE ELECTRODE PATTERN APPARATUS FOR STEERING PARAMETRIC MODE ACOUSTIC BEAMS**

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(58) **Field of Search** 367/92

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(57) **ABSTRACT**

A piezoelectric embedded monolithic active surface for transmitting a directed acoustic beam comprising a monolithic active surface, a plurality of piezoelectric elements embedded on the surface forming an array comprising, a plurality of coupled frequency pairs comprising, a first primary frequency row extending in a frequency steered direction the first primary frequency row enabled to accept a first primary frequency signal, and a second primary frequency row extending in the frequency steered direction and located adjacent to the first primary frequency row the second primary frequency row enabled to accept a second primary frequency signal, wherein the plurality of coupled frequency pairs repeat in a delay-steered direction and wherein each of the coupled frequency pairs are enabled to accept a time delayed copy of the first and second primary frequency signals.

9 Claims, 3 Drawing Sheets